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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,283	10/02/2006	Ian Gilbert	1718-0223PUS1	2608

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EXAMINER	
RAO, DEEPAK R	

ART UNIT	PAPER NUMBER
1624	

NOTIFICATION DATE	DELIVERY MODE
08/24/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/585,283	GILBERT ET AL.	
	Examiner	Art Unit	
	Deepak Rao	1624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060703 & 20080912*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims **1-26*** are pending in this application.

****Note***: The claims as presented were not numbered in consecutive order and did not contain "claim no. 19". Claim 19 was missing in the original claim listing as well as the listing of the preliminary amendment. According to 37 CFR 1.126, the original claims 20-27 have been renumbered as claims 19-26.

The subsequent amendments should contain claim numbers consistent with this correction and the claim dependencies should be corrected accordingly.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for the treatment of malaria, does not reasonably provide enablement for a method for the treatment of all other parasitic infections; or a method for the **prophylaxis** of malaria or parasitic infections generally. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

In evaluating the enablement question, several factors are to be considered. Note *In re Wands*, 8 USPQ2d 1400 and *Ex parte Forman*, 230 USPQ 546. The factors include: 1) The nature of the invention, 2) the state of the prior art, 3) the predictability or lack thereof in the

art, 4) the amount of direction or guidance present, 5) the presence or absence of working examples, 6) the breadth of the claims, and 7) the quantity of experimentation needed. The determination that "undue experimentation" would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the above noted factual considerations.

The instant method claims are drawn to 'a method for the treatment or **prophylaxis** of parasitic infections such as malaria with an effective amount of formula I' and the specification discloses that the compounds have activity against parasite dUTPase and therefore are useful for the treatment or prophylaxis of parasitic infections. Test assays and procedures are provided in the specification in pages 53-64 related to evaluating antimalarial activity of the compounds, and it is concluded that the compounds of the invention are useful for treatment or prophylaxis of parasitic infections generally, however, there is nothing in the disclosure regarding how this test data correlates to the treatment of the diverse disorders encompassed by the instant claims. Further, there is no reasonable basis for assuming that the myriad of compounds embraced by the claims will all share the same physiological properties since they are so structurally dissimilar as to be chemically non-equivalent and there is no basis in the prior art for assuming the same. Note *In re Surrey*, 151 USPQ 724 regarding sufficiency of disclosure for a Markush group.

It is inconceivable as to how the claimed compounds can treat the entire class of parasitic diseases embraced by the claims having diverse mechanisms, involving various organisms and numerous strains thereof. See http://www.aber.ac.uk/~mpgwww/Edu/ParProto/ProtoTxt.html which reports that 'there are over 50,000 species of protozoa, of which ha fifth are parasitic' and that 'there is great variability between different strains'. For example, regarding *Coccidia* the

article provides that "The number of different species of coccidian is staggering….. the vast majority of Coccidia species are probably yet to be described". In reference to 'parasitic diseases', The Merck Veterinary Manual provides that 'clinical experience with many of the diseases is limited' (see http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/170709.htm). The instant claim language encompasses all types of parasitic disorders occurring in animals including human in general. There is no evidence of record which would enable the skilled artisan in the identification of the animal which has the potential of becoming afflicted with the disease(s) or disorder(s) claimed herein and therefore, require the treatment. Applicants have not provided any competent evidence or disclosed tests that are highly predictive for the pharmaceutical use of the instant compounds. Pharmacological activity in general is a very unpredictable area. Note that in cases involving physiological activity such as the instant case, "the scope of enablement obviously varies inversely with the degree of unpredictability of the factors involved". See *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). For example, the state of the art regarding a common skin disorder that occurs in dogs, it is expressed that "Generalized demodicosis is serious and often difficult to treat" (see http://pethealthclinic.tripod.com/skin/). Therefore, the state of the art provides the need of undue experimentation for the instantly claimed therapeutic benefits.

Furthermore, the scope of the claims is not adequately enabled solely based on antimalarial activity provided in the specification. The instant claims are drawn to 'a method for the treatment or **prophylaxis** of parasitic infections', and therefore, the instant claim language embraces disorders not only for the treatment, but for "**prevention**" which is not remotely

enabled. The instant compounds are disclosed to be active against parasite dUTPase and it is recited that the instant compounds are useful in the "prevention" of parasitic infections, for which applicants provide no competent evidence. "To prevent" actually means *to anticipate* or *counter in advance, to keep from happening etc.* (as per Websters II Dictionary) and therefore it is not understood how one skilled in the art can reasonably establish the basis and the type of subject to which the instant compounds can be administered in order to have the "prevention" effect. The specification provides assay for antimalarial activity, which relates to the treatment of malaria. Thus, it is inconceivable as to how the claimed compounds can not only treat but also "prevent" all diseases related to parasitic infections generally encompassed by the instant claims. There is no evidence of record, which would enable the skilled artisan in the identification of the people who have the potential of becoming afflicted with the disease(s) or disorder(s) claimed herein.

(Only a few of the diseases embraced by the instant claims are discussed here to make the point of an insufficient disclosure, it does not definitely mean that the other diseases meet the enablement requirements).

Thus, factors such as "sufficient working examples", "the level of skill in the art" and "predictability", etc. have been demonstrated to be sufficiently lacking in the use of the invention. In view of the breadth of the claim, the chemical nature of the invention, and the lack of working examples regarding the activity of the claimed compounds, one having ordinary skill in the art would have to undergo an undue amount of experimentation to use the invention commensurate in scope with the claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following reasons apply:

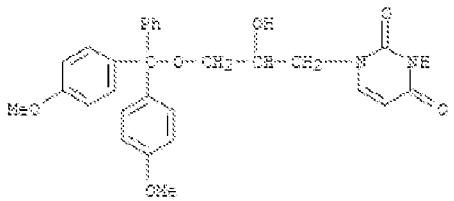
1. Regarding claim 1, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
2. In the claims, in the definitions of R^{10} and R^{11}, it is recited: "or a pharmaceutically acceptable ether, amide or ester thereof", which is confusing. The definitions of R^{10} and R^{11} include terms such as H, F, CH_3, etc. which can not have a correspond ether, amide, etc. It is not clear what types of substituents are intended by this recitation.
3. Claim 16 recites the limitation "R^{10} and R^{11} define an olefinic bond or a cyclopropyl group" in lines 1-2. There is insufficient antecedent basis for this limitation in claim 14 on which claim 16 is dependent. According to claim 14, -- R^{10} and R^{11} **together** define an olefinic bond --.
4. Claim 17 recites the limitation "R^{11} is CH_2OH" in line 1. There is insufficient antecedent basis for this limitation in claim 14 on which claim 17 is dependent.
5. Claim 25 drawn to a pharmaceutical composition depends from claim 1 which is drawn to 'a method'. This is not proper.

Claim Rejections - 35 USC § 102

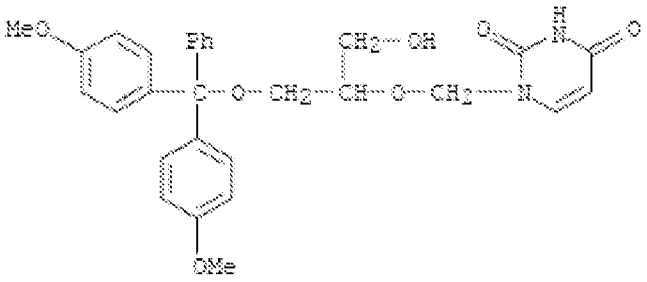
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

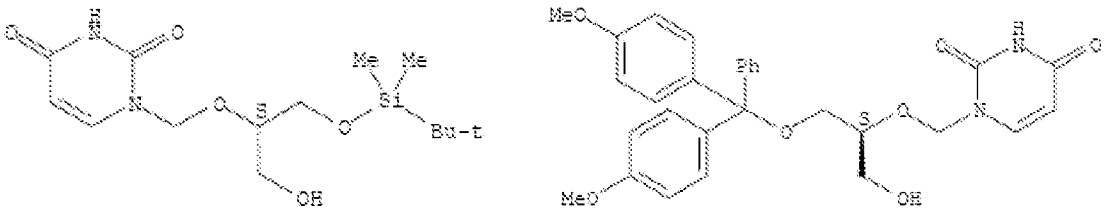
1. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Cook et al., WO 95/18820. The instant claim, drawn to a pharmaceutical composition, reads on the reference teachings. The reference teaches a compound of formula I (see page 6) and the corresponding compositions useful in the treatment of inflammatory diseases (see page 10). The reference further teaches specific compound, see the compound of Example 11 (structure depicted below for convenience):



2. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Takaku et al., JP 63060929 or the corresponding CAPLUS Abstract 109:211401 (1988). The instant claim, drawn to a pharmaceutical composition, reads on the reference teachings. The reference teaches a compound and the corresponding composition useful as antitumor agent. See the specific compound disclosed in the CAPLUS Abstract (structure depicted below for convenience):



3. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Takaku et al., JP 63165373 or the corresponding CAPLUS Abstract 110:115272 (1989). The instant claim, drawn to a pharmaceutical composition, reads on the reference teachings. The reference teaches a compound and the corresponding composition useful as ancancer agent. See the specific compounds disclosed in the CAPLUS Abstract (structure depicted below for convenience):



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takaku et al., JP 63165373 (or the corresponding CAPLUS Abstract 110:115272). The reference teaches a generic group of acyclic nucleoside compounds that are structurally analogous to applicant's instantly claimed compounds. See the compounds disclosed in JP 63165373 or the corresponding CAPLUS Abstract. The compounds are taught to be useful as pharmaceutical therapeutic agents having anticancer activity, see the abstract. The instant claims differ by having a $-CH(OH)CH_3$ group in place of the $-CH_2OH$ group for the reference disclosed compound. Therefore, the instant claims differ from the reference disclosed compounds by having a methyl group in place of a hydrogen (or H vs. CH_3). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the reference compounds to prepare the structural analogs by replacing the hydrogen with methyl. One having ordinary skill in the art would have been motivated to prepare the instantly claimed compounds because such structurally analogous compounds are expected to possess similar properties.

Receipt is acknowledged of the Information Disclosure Statements filed on July 3, 2006 and September 12, 2008 and copies are enclosed herewith.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deepak Rao whose telephone number is (571) 272-0672. The examiner can normally be reached on Monday-Friday from 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached at (571) 272-0661. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Deepak Rao/
Primary Examiner
Art Unit 1624

August 20, 2009